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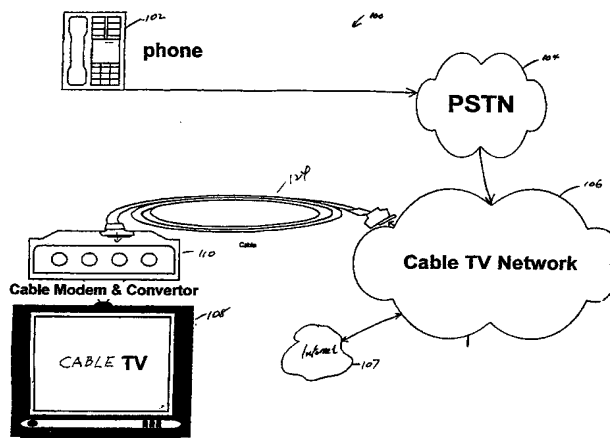
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- (71) Applicant: **ECABLE LLC** [US/US]; 7550 France Avenue South, Edina, MN 55435 (US).
- (72) Inventors: **KUNIN, David**; 3507 West 22nd Street, Minneapolis, MN 55416 (US). **TOLKACHEV, Sergey**; 9901 Harrison Road #319, Bloomington, MN 55437 (US). **FREIDSON, Robert**; 9901 Harrison Road #319, Bloomington, MN 55437 (US). **VINOGRADOV, Boaz**; 6156 East Greenway Lane, Scottsdale, AZ 85254 (US).
- (74) Agent: **DAIGNAULT, Ronald, A.**; Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903 (US).
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(54) Title: METHOD AND APPARATUS FOR INTERNET TV



(57) Abstract: A telephone interface and voice recognition driven Internet browser system and method for accessing/browsing the Internet or other remote computing services on a cable or satellite television includes a phone for receiving a voice signal from a user. The voice signal controls a telephone interface, which displays Internet contents or other computing services on the television via a cable or satellite television channel/media. The system also includes a voice recognizer, preferably operated on a supercomputer or located in the phone, for recognizing/interpreting/analyzing a plurality of voice signals and generating command signals to access/browse the Internet or other computer services. The voice recognizer is capable of recognizing/interpreting/analyzing voice signals transmitted from a plurality of users in real time. The system further includes a stack of computers and an Internet browser. Each of the stack of computers is capable of accessing/browsing the Internet and retrieving/organizing requested Internet contents via the Internet browser. The requested Internet contents are sent to the user via a cable or satellite television channel/media with a frame grabber, an intelligent router, or a pre-downloaded system.



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METHOD AND APPARATUS FOR INTERNET TV

This application is being filed as a PCT International Patent application in the name of eCable LLC., a U.S. national corporation, on 21 November 2000, designating all countries except the United States of America.

BACKGROUND OF THE INVENTION**1. Field of the Invention**

The present invention relates to a remote-controlled television Internet system and method, and more particularly, to a telephone interface and voice recognition driven Internet browser system and method for Internet accessing and browsing as well as other remote computing services on a cable or satellite television.

2. Description of Related Art

In entering into the twenty-first century, Internet business or e-commerce has become one of the largest industries and continues its growth exponentially. Many people's daily lives are closely related to the Internet business and are significantly impacted by the Internet technology's evolution and revolution. More and more people have used the Internet and even accessed/browsed the Internet in their daily lives, whether for work, entertainment, shopping, or education, etc. The Internet is creating a new economy, which is competing with people's traditional way of living.

Like many other new technology, Internet technology is facing many challenges and problems, particularly when Internet technology is penetrating into the general public. One of the main problems is that Internet accessing/browsing often requires one to know how to use a personal computer. At present, still the majority of the general public is not computer literate or may not care to be computer literate. Many people have found that a personal computer is clumsy, expensive to maintain and/or upgrade, and often not reliable. As a result, many people still avoid using a personal computer.

Further, even if one uses a personal computer, to access/browse the Internet is often problematic. For example, the Internet connection between a computer and Internet providers is often denied during a peak time, and the Internet connection is generally very slow in uploading/downloading Internet information. People have to
5 pay much more monthly fees to obtain a relatively higher speed access to the Internet. Such fees put the access to the Internet out of reach of most people.

In addition, a personal computer is usually used for a lot of different applications, such as word processing, imaging designing, networking, email, Internet accessing/browsing web sites, etc. These applications and the computer
10 itself are co-existed and generally operated by a complicated software operating system, thereby significantly slowing down the operations of the applications. The more applications are operated by an operating system, the slower the operation speed is. This significantly slows down the performance of the Internet accessing/browsing. The operation overhead of most personal computers is not
15 optimized for advanced Internet performance like streaming video or other high volume data transmission applications.

Also, a personal computer does not provide a comfortable setting for people to surf the Internet for entertainment, shopping, education, etc. As a result, many people, even if they own a personal computer, have been looking for other
20 alternatives to access the Internet.

Some recent Internet technology has demonstrated its ability to access/browse the Internet without a personal computer by using new types of devices broadly called "information appliance" -- essentially, they are digital gadgets of various sizes and shapes, which are dedicated to surfing the Internet. Some
25 devices resemble cable TV boxes, and some others look like small laptops, mobile phones, etc. Some devices are used to surf the Internet and access e-mails, and some others are strictly used to surf the Internet. While people have saved money from buying a personal computer, they are forced to purchase as well as maintain a new line of "information appliance" for different purposes. Furthermore, these new
30 devices are basically small sized computers for different specific purposes. However, many people still are not interested in buying a new device just to surf the Internet.

The general public is used to conventional devices, such as televisions, phones, etc. Also, the majority of the general public has already owned these conventional devices. They are easy to operate and relatively reliable in performance. Therefore, there is a desire for the general public to access/browse the Internet via these conventional devices without using a personal computer, or other hardware equipment, such as modem, "information appliance", etc. Just like many people have quit buying an answering machine for storing phone messages --instead, using a "hardware-less" voice messaging service--, there is a need to have a "hardware-less" Internet service to access/browse the Internet via conventional televisions and phones.

Most of the homes or offices have recently been wired for cable broadcast, which may hook to a set top box and a cable ready television, or wired for a satellite receiver to receive multiple television channels. It is desirable to use the existing cable wiring or satellite receiver to receive Internet information. More importantly, cables or satellite channels have much wider bandwidth to serve the general public than phone lines which computers are generally connected to. It is desirable to use the existing wide band cable or satellite systems to receive volumetric Internet information, such as streaming video, etc.

Internet TVs were proposed several years ago. Internet TVs were proposed to provide people the possibility of obtaining Internet access at a location, such as at home, by using only a regular cable TV set and an easy-to-use control device, such as a phone. For example, a concept of a telephone remote-controlled cable television Internet was once introduced, in which button keys of a push button-type telephone at a cable television subscriber's end are used to simulate functions of a computer mouse or a computer keyboard to remote-control, via a telephone network, an Internet main unit at a cable television provider's end, so as to acquire Internet resources around the world.

However, the proposed Internet TVs are very primitive and immature. Due to the communication channel band limitation, the proposed Internet TVs cannot serve multiple users or a large amount of users at the same time. In addition, there are privacy or other security concerns, which have not been addressed, in the proposed Internet TVs. Further, the push button-type telephone interface is not user-

friendly. People are not used to relate the button keys or their corresponding English letters on a telephone to the represented functions or modes. Also, different telephones may have a different arrangement for the button keys. These make surfing the Internet very time consuming and uncomfortable. Furthermore, the button keys on a telephone may malfunction after a period of use. Moreover, quite a few people are still using conventional rotary telephones, which do not have push button keys.

The Internet TVs were proposed to allow a user to surf the Internet on TV. However, the proposed Internet TVs mainly provide a bridge between the Internet URL sources and the cable TV systems by stream downloading whatever the URL sources present. Users may not very easily browse Internet contents to find what they are looking for because the stream-downloaded Internet contents are merely related to certain URL sources or destinations. Many users have wasted a lot of time in looking for URL sources and/or in browsing Internet contents. Users often desire assistance in an interactive manner to not only find a URL source for certain Internet contents, but also have a user-friendly interface to find the URL source and go through the Internet contents. Also, the users would often like to organize Internet contents in a specific fashion.

It is with respect to these or other considerations that the present invention has been made.

SUMMARY OF THE INVENTION

To overcome the limitations in the prior art described above, and to overcome other limitations that will become apparent upon reading and understanding the present specification, the present invention discloses a telephone controlled cable or satellite television Internet system and method and remote computing service systems and methods.

The present invention solves the above-described problems by using a telephone interface and voice recognition driven Internet browser system and method for Internet accessing/browsing on a cable or satellite television. One of the cable or satellite channels is designated for the Internet accessing/browsing.

In one embodiment of the present invention, a system for accessing/browsing the Internet on a cable or satellite television, includes: a phone for receiving a voice signal from a user, the voice signal controlling an Internet interface which displays Internet content on the television via a cable or satellite channel; a voice recognizer, operated on a supercomputer or other computer platforms (e.g. CPU platforms), recognizing/interpreting/analyzing the voice signal and generating command signals to access/browse the Internet, the voice recognizer being capable of simultaneously recognizing voice signals transmitted from a plurality of users and generating command signals for accessing/browsing the Internet; and a stack of computers (or like devices optimized for Internet accessing/browsing) and an Internet browser, each of the stack of computers, based on the command signals from the voice recognizer, accessing/browsing the Internet and retrieving/organizing Internet content via the Internet browser, the Internet content being sent to the cable or satellite television via cable or satellite media.

Further in one embodiment of the present invention, the voice recognizer operated on the supercomputer or other computer platforms is disposed in a phone switching network. In another embodiment, the voice recognizer operated on the supercomputer or other computer platforms is disposed in a cable or satellite system. In a further embodiment, the voice recognizer can be installed in a phone or any other parts of the system.

Still in one embodiment of the present invention, the accessed, browsed, or organized Internet content is presented on the cable or satellite television and interactive with the user's voice signal.

Additional in one embodiment of the present invention, the cable or satellite television further includes a set top box/filter having identification. If an identification of the phone does not match with the identification of the set top box/filter, the Internet content is filtered out. If the identification of the phone matches with the identification of the set top box/filter, the Internet content is presented on the television.

Yet in one embodiment of the present invention, the cable or satellite television further includes a frame grabber device for locally refreshing the content of the Internet information presented on the television until a subsequent request being made by a user via the phone.

5 Yet in one embodiment of the present invention, the voice signal may include a plurality of instructions of accessing/browsing the Internet content, and/or a plurality of menu instructions, such as "go back" to the previous frame, "go to" the main page, etc.

Still in one embodiment of the present invention, the phone switching
10 network is coupled to a plurality of users' phones for routing corresponding plurality of voice signals from the plurality of users to the voice recognizer for recognizing/interpreting/analyzing the corresponding voice signals and generating command signals to access/browse the Internet on the cable or satellite system. The system includes at least one Internet browser. The Internet browser can be run on a
15 computer or a stack of computers, for accessing, browsing, and/or organizing Internet contents based on the command signals from the voice recognizer and presenting accessed, browsed, and/or organized Internet contents or user instructions from the cable or satellite system to the cable or satellite television.

In one embodiment of the present invention, a method of accessing/browsing
20 the Internet via a cable or satellite television includes: receiving a voice signal from a user, the voice signal controlling an Internet interface which displays the Internet content on the cable or satellite television via a cable or satellite channel; routing the voice signal to a voice recognizer; recognizing/interpreting/analyzing the voice signal and generating command signals to access/browse the Internet contents on a
25 cable or satellite system by a supercomputer, the voice recognizer being capable of simultaneously recognizing/interpreting/analyzing a plurality of voice signals transmitted from a plurality of users and generating the command signals for accessing/browsing the Internet; accessing, browsing, and/or organizing Internet contents based on the command
30 signals from the voice recognizer; and presenting accessed, browsed, and/or organized Internet content from the cable or satellite system to the cable or satellite television via a cable or satellite channel or medium.

Additionally in one embodiment, the method further includes the step of receiving a second voice signal, which is interactive to the Internet content presented on the cable or satellite television.

Further in one embodiment of the present invention, the operation of the voice recognizer on the supercomputer is in the phone switching network. In an alternative embodiment, the operation of the voice recognizer on the supercomputer is in the cable or satellite system.

Still in one embodiment of the present invention, the method further includes the step of filtering out the signals received from the cable or satellite channel if an identification of the phone does not match with an identification of a filter, and passing through the signals if the identification of the phone matches with the identification of the filter.

Yet in one embodiment of the present invention, the method further includes the step of locally refreshing the content of the Internet information presented on the television until a subsequent request being made by a user via the phone.

Additionally in one embodiment of the present invention, the method further includes the step of downloading information, such as movies, music, or other services, etc., at a local site, e.g. at the set top box of the television or the like, for a user to make subsequent uses.

The present invention provides a system capable of uploading voice signals via a narrowband wire or medium, such as a phone line or a data port line (or referred to as the smaller wire), and downloading the Internet information via a broadband wire or medium, such as cables or satellite receiver (or referred to as the larger wire). The larger wire is well suited to receive a large amount of data efficiently. Accordingly, the present invention uses voice recognition to upload a request via a telephone wire and download the requested data via a cable or satellite channel.

One advantage of the present invention is that it provides a user friendly interface such that a user does not have to be a computer literate to access/browse the Internet. Also, a computer does not have to be maintained and/or upgraded on an individual user basis.

These and various other advantages and features of novelty which characterize the invention are pointed out with particularity in the claims annexed hereto and form a part hereof. However, for a better understanding of the invention, its advantages, and the objects obtained by its use, reference should be made to the drawings which form a
5 further part hereof, and to accompanying descriptive matter, in which there are illustrated and described specific examples of an apparatus in accordance with the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Referring now to the drawings in which like reference numbers represent
10 corresponding parts throughout:

Fig. 1 illustrates a schematic diagram of one embodiment of a system for accessing/browsing the Internet via a cable television in accordance with the principles of the present invention.

Fig. 2 illustrates a block diagram of one embodiment of a telephone interface
15 and a voice recognition driven Internet browser system for Internet accessing/browsing on a cable television in accordance with the principles of the present invention.

Fig. 3 illustrates a block diagram of one embodiment of the telephone interface and voice recognition driven Internet browser system implemented for a
20 plurality of users to access/browse the Internet on their respective cable televisions in accordance with the principles of the present invention.

Fig. 4 illustrates one implementation of an operational flow of a method of a telephone interface and voice recognition driven accessing/browsing Internet contents on a cable television in accordance with the principles of the present
25 invention.

Fig. 5 illustrates one implementation of an operational flow of a voice recognition driven Internet browsing system in accordance with the principles of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

In the following description of the exemplary embodiment, reference is made to the accompanying drawings which form a part hereof, and in which it is shown by way of illustration the specific embodiment in which the invention may be practiced.

5 It is to be understood that other embodiments may be utilized as structural changes may be made without departing from the scope of the present invention.

The present invention discloses a telephone controlled television Internet system and method and remote computing service systems and methods. The present invention uses a telephone interface and voice recognition driven Internet
10 browser system and method for Internet accessing/browsing on a cable or satellite television.

It is appreciated that the present invention is not limited to an embodiment of an Internet TV system where a transmitting device is a telephone, and a receiving device is a television via a cable or satellite channel or medium. The present
15 invention applies to many other embodiments and/or configurations of an Internet TV system where a transmitting device can be any types of voice related devices, such as a touch tone phone, a rotary phone, a cell phone, a voice conference phone, a headset phone, etc., and a receiving device can be any types of viewing devices, such as a television, a portable personal communication device, e.g. a palm pilot, or a
20 receiving screen mounted in a vehicle, etc. The media for transmitting or broadcasting high volume information, such as streaming video, etc., can be any types of media, such as fiber or copper cables, satellites, or other broadcasting media, etc.

As an example, a system and method of accessing/browsing the Internet via a
25 cable environment and a cable ready television are discussed below. It is appreciated that the system and method of accessing/browsing the Internet via a satellite television or any other broad band receivers can be implemented within the scope of the present invention.

In Fig. 1, a telephone controlled cable television Internet system 100 is
30 illustrated. A user's request for accessing/browsing the Internet or other menu instructions are keyed-in via a phone 102 with unique caller identification (ID).

Such request and caller ID are routed to a phone switching network 104 or referred to as a phone hub, such as a Public Switched Telephone Network (PSTN) or a Private Switched Telephone Network, etc. The request and caller ID are processed and sent to a cable TV network 106 or referred to as a cable hub system. The cable TV network 106 includes a stack of computers or CPUs as shown in Figs. 2-3, each of which can be used to access/browse the Internet via an Internet browser. The stack of computers or CPUs can be arranged and configured to receive and process a number of command signals corresponding to users' requests. It is appreciated to a person skilled in the art that the capability of a computer would allow the stack of computers to process essentially a virtual amount of requests in real time.

Computers can be upgraded or replaced at the cable TV network end 106 as opposed to at a user end. Accordingly, one of the advantages of the present invention is that a user does not have to be computer literate and/or maintain/upgrade a computer on an individual user basis.

The stack of computers access/browse the Internet 107 based on the respective command signals, and retrieve/organize the Internet contents and/or telephone interface command menu based on the Internet browser. The signals carrying the Internet contents and ID are then sent to cable subscribers to be viewed on a cable TV 108 via cable media 124. The cable TV 108 is coupled to a cable box 110, which includes a filter 131 (in Fig. 2). The filter filters out the Internet contents if the ID of the phone does not match with an identification of the filter (in Fig. 2). Thus, only the requester's television displays the requested contents and/or telephone interface command menu.

The cable box 110 also includes a frame grabber 132, which locally refreshes the Internet contents and/or telephone interface command menu until a subsequent request is made. The Internet contents and/or telephone interface command menu are presented on the cable TV to be viewed by the user.

Since the speed of making the subsequent request is much slower than the speed of cable TV transmission, the real time use of an Internet designated cable channel is significantly reduced. Accordingly, a virtual number of users can subscribe to such Internet designated cable channel without losing privacy of Internet contents that each of the user's is viewing. It will be appreciated that the

Internet browser is customized and is interactive between the requester and the contents displayed.

The phone 102 is preferably coupled to a voice recognizer 114 (in Fig. 2) such that the requester may simply make a request by talking to the phone 102 without the necessity of entering keys or buttons on the phone. It is appreciated that the phone can be in a variety of forms, for example, a touch tone phone, a rotary phone, a cellular phone, a mobile phone, a speaker phone, a Personal Digital Assistant (PDA) phone, etc. It is also appreciated that the requester sometimes may merely make a request by entering the keys or buttons on the phone. It is further appreciated that other types of control devices can be used in combination of the phone within the scope of the present invention.

In Fig. 2, a telephone interface and voice recognition driven Internet browser system 112 for Internet accessing/browsing on the cable TV 108 is illustrated. The phone 102 receives voice signals from a user or requester. The voice signals control display content, for example, the Internet contents and/or other telephone interface command/instruction menus, on the cable TV 108 via cable media or channels. The phone switching network or phone hub 104 is coupled to the phone 102 via a switch unit 105 for routing the voice signals to the voice recognizer 114. The voice recognizer 114 recognizes/interprets/analyzes the voice signals and generates command signals to access/browse the Internet. The voice recognizer 114 may be operated on a phone hub computer 116, for example, a supercomputer, such that the voice recognizer 114 is capable of simultaneously recognizing a plurality of voice signals transmitted from a plurality of users or requesters and generating a plurality of command signals to access/browse the Internet. The supercomputer may be defined as a computer having a calculating speed of at least 1 billion times per second. The phone hub computer 116 can be implemented in many other computer platforms, e.g. CPU platforms, etc. It is appreciated that any other fast computer, such as parallel-processing computers, may be used within the scope of the present invention. Also, it is appreciated that the present invention does not limit to operating the voice recognizer 114 on a computer. The voice recognizer 114 may be operated on a voice card with DSP (Digital Signal Processing) and AgT with a memory, etc.

The command signals are then sent to the cable system 106. It is appreciated that the computer 116, which operates the voice recognizer 114, may also be implemented in the cable system 106 within the scope of the present invention.

In Fig. 2, the cable system 106 includes a cable hub computer or CPU 118 to
5 access/browse the Internet 107. An Internet browser 120 is run on the cable hub computer or CPU 118 to retrieve/organize Internet contents from the Internet 107. The cable system 106 also includes a stack of computers or CPUs 122, each of which is operable with the cable hub computer or CPU 118 to access, browse, and/or organize the Internet contents and/or telephone interface command menu. It is
10 appreciated that the Internet browser 120 may be run on the stack of computers or CPUs 122 directly to access, browse, and/or organize the Internet contents and/or telephone interface command menu to be subsequently presented on the respective cable TV 108. It is also appreciated that the voice recognizer 114 can be installed in any part of the system, for example, in the phone 102, on the CPU stacks 122, or on
15 a remote network computer, within the scope of the present invention. It is further appreciated that Internet contents can be organized at Internet providers' site with a format comparable to the Internet browser 120 and presentable on a television or the like, such that the user is able to browse the contents in a standardized user friendly fashion.

20 In Fig. 2, the cable system 106 may also include a data storage unit 126 for storing data or information, such as previously retrieved/organized Internet contents, telephone interface menu, etc. Accordingly, if the user only makes a request with a minor change to the previous Internet contents and/or telephone interface menu, the data or information stored in the data storage unit 106 may be used without the
25 necessity of re-retrieving/re-organizing the Internet contents, thereby increasing the speed for processing the request.

In Fig. 2, the cable system 106 includes an Internet Service Provider (ISP) 28 or referred to as Cable/Internet Service Provider. The ISP 128 routes the cable signals to the cable box 110 of cable user/subscriber 130 via cable media or channel
30 124. The cable signals are received by the intended user 130, via a filter 131. The filter 131 preferably has a predetermined identification. If the predetermined identification of the filter 131 matches with the phone ID carried with the cable

signals, the filter 131 allows the cable signals to be presented on the respective TV 108. If the phone ID does not match with the ID of the filter 131, the filter 131 filters out the cable signals downloaded from the channel 124. Accordingly, the other cable TV subscribers will not be able to view the requester/subscriber's

- 5 Internet contents and/or telephone interface menu on their TVs 108. Thus, each user can have essentially his/her own Internet TV channel without losing privacy in viewing his/her individually requested Internet contents.

Further, the cable box 110 includes the frame grabber 132. The frame grabber 132 is used to locally refresh the Internet contents and/or telephone interface menu displayed on the user television until a subsequent request is made to change the Internet contents. Since the changes from one Internet content frame to the next Internet content frame are generally small and made in slow speed, e.g. one's speaking speed, the system can be adapted to be used by a virtual number of users, as opposed to a limited number of users in a typical video-on-demand circuit system.

10

15 It is also noted that the ISP may be a part of a cable operator (not shown) without departing from the present invention.

Fig. 3 illustrates the telephone interface and voice recognition driven Internet browser system 112 implemented for a plurality of users/subscribers 130 to access/browse the Internet on their respective TVs 108 in accordance with the principles of the present invention. It is appreciated that the system may include an intelligent router to send a subscriber requested Internet contents directly to that subscriber without broadcasting the requested Internet contents to all of the other subscribers before filtering out.

20

Fig. 4 illustrates one implementation of an operational flow 134 of a method of telephone interface and voice recognition driven accessing/browsing Internet contents on a cable TV in accordance with the principles of the present invention. The operational flow 134 starts with user requesting via a phone in an operation 135. The voice signals of the user are received and are used to control the display on the user's cable TV in an operation 136. Then, the voice signals are

25

30 recognized/interpreted/
analyzed at the voice recognizer, which may be run on a supercomputer in an operation 138. The voice recognizer generates command signals corresponding to

the voice signals to access/browse the Internet. Next, the Internet contents are accessed, browsed, and/or organized based on the command signals from the voice recognizer in an operation 140. Then, the data or information, such as the Internet contents and/or telephone interface menu, are processed and presented on the user's cable TV via cable media/cable box in an operation 142. The user may make a further request to interact with the data or information presented on the cable TV in the operation 135. It is appreciated that the operational flow 134 may terminate, pause, or continue at any time by the user. It is also appreciated that the operational flow 134 may include a timing function to ensure that the operational flow 134 will be terminated if the user does not pause or continue the operation 135 within a predetermined period of time.

It is appreciated that the telephone interface command menu can be in a variety of forms. The interface may include commands such as edit, exit, show previous, show next, etc.

Fig. 5 illustrates one implementation of an operational flow of a voice recognition driven Internet browsing system in accordance with the principles of the present invention. A voice signal is input into a voice recognition system 144, which recognizes the voice signal and generates a text. The text is then input into a natural language representation system 146 to be interpreted, and then into a semantic natural language knowledge representation system 148 to be analyzed. The natural language representation system and the semantic natural language representation system are often referred to as a voice recognition system, which are able to translate from a stream of sounds into a stream of words. The words are then interpreted by an expert system, such as a natural language processor or a neural network processor, to create semantic network support, a knowledge representation system, or some other stream of command signals and/or text. The command signals are used to access/browse the Internet via an Internet browser 150. The resulting information is sent to an identified receiver 154 via cable boxes, satellite receiver, or other similar broadcasting devices 152.

It is noted that the voice recognition system can be implemented in conjunction with a control device. It is also noted that the present invention may be operated with or without the voice recognition system. In one embodiment, the

control device drives a stream of commands to a stack of computer processors, a supercomputer, or the like. The control device may be a mouse, keyboard, joystick, or simple play station type device, television remote control, or the keypad of the phone, in addition to controls that are driven through a voice recognition

5 configuration.

It is further noted that a phone line or voice line can be implemented in conjunction with a cable line or satellite signal wave. In one embodiment, phone lines or voice lines can be configured and arranged as a part of a cable or satellite hookup to a home or other receiving destinations.

10 In addition, the Internet TV system of the present invention can be used in association with a security system, which is based on individual characteristics of each user's voice. Voice is as individual as a fingerprint. The voice recognizer can be arranged or configured to screen out other voices or noises received at the voice recognizer, such as ambient noise, or to only recognize/interpret/analyze a specific
15 user's voice profile in performing a specific Internet browsing request. For example, a teen may not be able to request a certain Internet browsing requests, etc., while parents' voice profiles would be accepted for these requests.

It is further noted that in the present invention, computers, supercomputer, or stacks of computers, which are used to process a voice mode or other modes of instruction
20 request, are provided to the users as a service. They are generally located in a remote site from a user's transmitting or control device. One advantage of this is that users do not have to purchase upgraded computers or other "information appliance" every time when there is an advance or improvement in computing technology that improves processing functionality. The processing functionality can be added to the
25 system by upgrading the service to the users without disrupting their current service or forcing them to buy new equipment. Further, it is appreciated that processing power of these computers can be used for other types of personal computing functions. A remote personal computer type service can be offered on the present system as well as Internet access as described above. For example, a word processor
30 or a database management program can be offered as a service on the present system, as opposed to a product that a user often has to buy. These services can be

offered to a user in a similar fashion as a voice messaging service offered by telephone companies.

It is also appreciated that the services offered the Internet can be downloaded at a local site, e.g. at a set top box of the television, etc., for a user to make
5 subsequent uses. This is similar to the movie menu services offered in hotels.

Further, instead of a frame grabber as described above, an intelligent router can be implemented within the scope of the present invention. Typically, a frame grabber can be used to refresh a static image or low speed video clips, whereas an intelligent router can be used for transmitting high speed streaming video type of
10 data. One way of describing the difference of the two is to introduce the processes of addressing packets of information, reading and routing the packages as well as opening the package envelopes. In the case of a frame grabber, a full address of packages of information is read at an individual recipient or local site, and a static image is refreshed on a screen at that location until a new packet is opened up to
15 replace it. In the case of an intelligent router, a partial address read at trunks or branches of a media system, e.g. a cable system, allows for package delivery in a more sophisticated way and thereby creating enough capacity to provide streaming video to an individual recipient or local site at, e.g. thirty-two new frame packages of information per second. An alternative way of providing such capacity may be to
20 create a massive number of new channels, one for each specific household or user, which relies significantly on advancement of channel bandwidth technology.

Accordingly, the present invention provides a system in which voice and an instruction stream come from a control device in a user's location and are sent upstream to a computer or a stack of computers at a remote site. In the case of
25 voice, a translation is made from sounds to a stream of text and processing commands. A stack of computers process requested functions upon receiving the commands, for example, accessing/browsing the Internet interface and/or performing other computing functions. The requested information is then displayed on a television type of receiving device. The present system is arranged and
30 configured in a loop between the control device at a local site, such as home, where requests are sent to a computer at a remote site via a narrowband medium, such as a phone line, and a display at the local site for displaying requested information from

the computer via a broadband medium, such as a cable or satellite channel or medium.

The foregoing description of the exemplary embodiment of the invention has been presented for the purposes of illustration and description. It is not intended to
5 be exhaustive or to limit the invention to the precise form disclosed. Many modifications and variations are possible in light of the above teaching. It is intended that the scope of the invention be limited not with this detailed description, but rather by the claims appended hereto.

WHAT IS CLAIMED IS:

1. A system for accessing/browsing the Internet on a television, comprising:
 - a phone for receiving a voice signal from a user, the voice signal controlling a television display, which is capable of displaying Internet contents via a television channel;
 - a voice recognizer for recognizing/interpreting/analyzing the voice signal and generating a command signal, the voice recognizer being capable of recognizing/interpreting/analyzing voice signals transmitted from a plurality of users;
 - an Internet browser for accessing/browsing the Internet and retrieving/organizing requested Internet contents; and
 - a stack of computers, each of the stack of computers operable to access/browse the Internet and retrieve/organize requested Internet contents based on the command signal and the requested Internet contents being sent from at least one of the stack of computers to the television via the television channel.
2. The system of claim 1, wherein the television channel is a cable television channel.
3. The system of claim 1, wherein the television channel is a satellite television channel.
4. The system of claim 1, further comprising a filter having an identification, wherein the phone has an identification, if the identification of the phone does not match with the identification of the filter, the filter filters out the requested Internet contents, and if the identification of the phone matches with the identification of the filter, the filter lets the requested Internet contents pass through such that the requested Internet contents are displayed on the television.
5. The system of claim 1, further comprising a frame grabber, the frame grabber locally refreshes the Internet contents on the television until a subsequent user request being made.

6. The system of claim 1, further comprising a frame grabber, the frame grabber locally refreshes the Internet contents on the television for a period of time.
7. The system of claim 1, wherein the voice recognizer is operated by a supercomputer coupled to a phone switching network.
8. The system of claim 1, wherein the stack of computers and the Internet browser are disposed in a cable system.
9. The system of claim 7, wherein the phone switching network is coupled to a plurality of phones for routing corresponding voice signals from the plurality of users to the voice recognizer for recognizing/interpreting/analyzing the corresponding voice signal and generating command signals to access/browse the Internet.
10. A method of accessing/browsing the Internet on a television, comprising:
 - receiving a voice signal from a user, the voice signal controlling a television display, which is capable of displaying, requested Internet contents via a television channel;
 - routing the voice signal to a voice recognizer;
 - recognizing/interpreting/analyzing the voice signal and generating command signals, the voice recognizer being capable of recognizing/interpreting/analyzing voice signals transmitted from a plurality of users;
 - accessing/browsing the requested Internet contents; and
 - presenting accessed/browsed Internet contents on the television via the television channel.
11. The method of claim 10, wherein the television channel is a cable television channel.

12. The method of claim 10, wherein the television channel is a satellite television channel.
13. The method of claim 10, further comprising filtering out the requested Internet contents by a filter if an identification of the phone does not match with an identification of the filter, the filter letting the requested Internet contents pass through if the identification of the phone matches with the identification of the filter.
14. The method of claim 10, further comprising locally refreshing the Internet contents on the television until a subsequent user request being made.
15. The method of claim 10, further comprising locally refreshing the Internet contents on the television for a period of time.
16. A computer program storage medium readable by a computing system and encoding a computer program of instructions for executing a computer process for accessing/browsing the Internet on a television, the computer process comprising:
 - receiving a voice signal from a user, the voice signal controlling a television display, which is capable of displaying, requested Internet contents via a television channel;
 - routing the voice signal to a voice recognizer;
 - recognizing/interpreting/analyzing the voice signal and generating command signals, the voice recognizer being capable of recognizing/interpreting/analyzing voice signals transmitted from a plurality of users;
 - accessing/browsing the requested Internet contents; and
 - presenting accessed/browsed Internet contents on the television via the television channel.
17. A computer data signal embodied in a carrier wave readable by a computing system and encoding a computer program of instructions for executing a computer

process for accessing/browsing the Internet on a television, the computer process comprising:

- receiving a voice signal from a user, the voice signal controlling a television display, which is capable of displaying, requested Internet contents via a television channel;

- routing the voice signal to a voice recognizer;

- recognizing/interpreting/analyzing the voice signal and generating command signals, the voice recognizer being capable of recognizing/interpreting/analyzing voice signals transmitted from a plurality of users;

- accessing/browsing the requested Internet contents; and

- presenting accessed/browsed Internet contents on the television via the television channel.

18. A system for requesting Internet access/browsing via a narrowband medium and displaying requested information via a broadband medium, comprising:

- a control device for uploading a user's request via the narrowband medium;

- a stack of computers for receiving and processing the user's request from the control device, each of the stack of computers operable to access/browse the Internet and retrieve Internet contents based on the user's request;

- an Internet browser, operated by at least one of the computers, being arranged and configured to access/browse the Internet and retrieve the requested Internet contents; and

- a receiving device for receiving and displaying the Internet contents from the stack of computers, the Internet contents being downloaded to the receiving device via the broadband medium.

19. The system of claim 18, wherein the narrowband medium includes a phone line.

20. The system of claim 18, wherein the broadband medium includes a cable line.

21. The system of claim 18, wherein the broadband medium includes a satellite signal wave.

22. The system of claim 18, wherein the control device includes a phone, and the receiving device includes a television.

23. A system for requesting a computing service provided at a remote site via a narrowband medium and displaying requested computing service at a local site via a broadband medium, comprising:

a control device for uploading the computing service request via the narrowband medium, the control device being located at the local site;

a computer for receiving and processing the computing service request from the control device; and

a receiving device for receiving and displaying a processed result from the computer, the processed result being downloaded to the receiving device via the broadband medium.

24. The system of claim 23, wherein the narrowband medium includes a phone line.

25. The system of claim 23, wherein the broadband medium includes a cable line.

26. The system of claim 23, wherein the broadband medium includes a satellite wave.

27. The system of claim 23, wherein the control device includes a phone, and the receiving device includes a television.

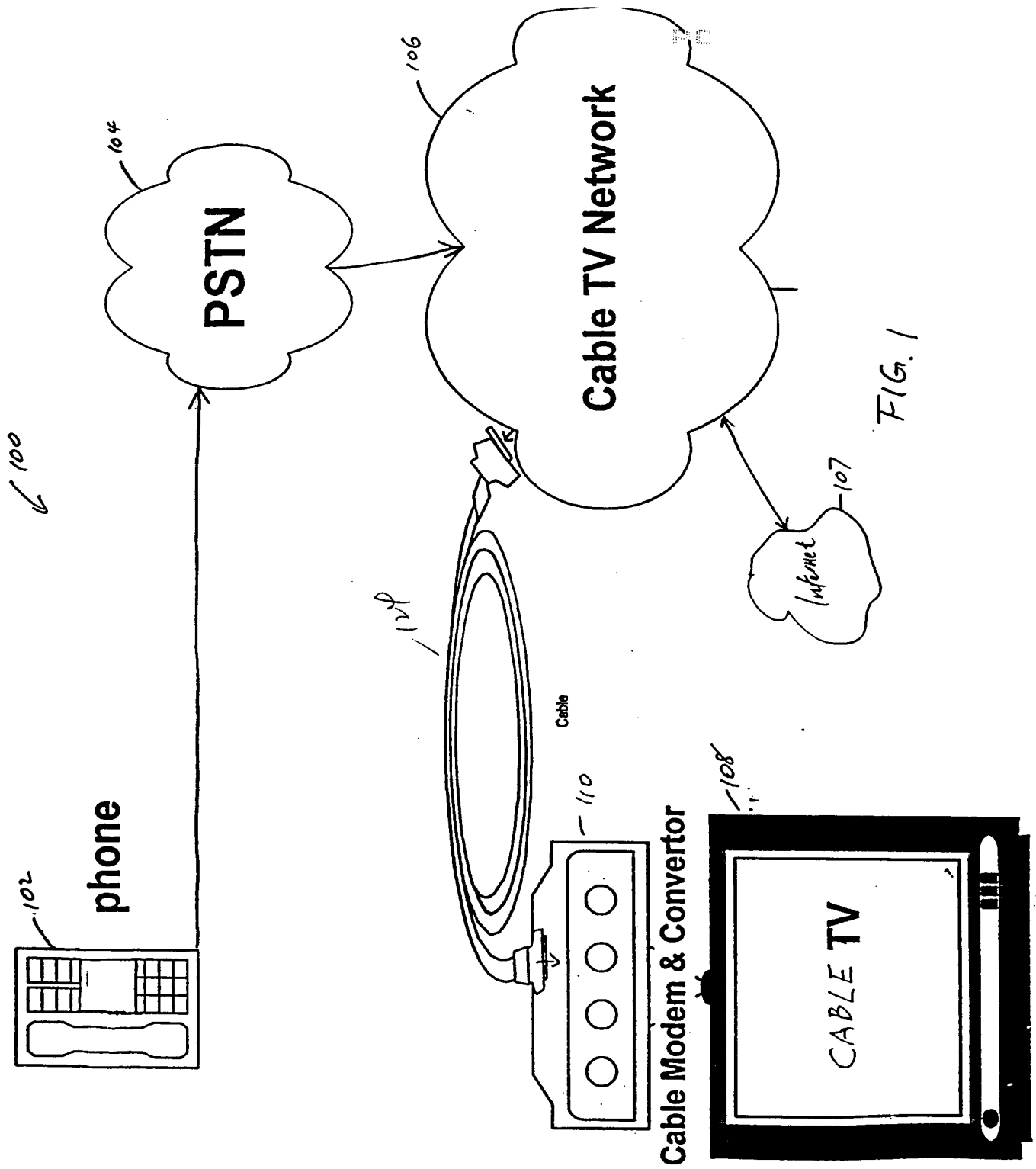
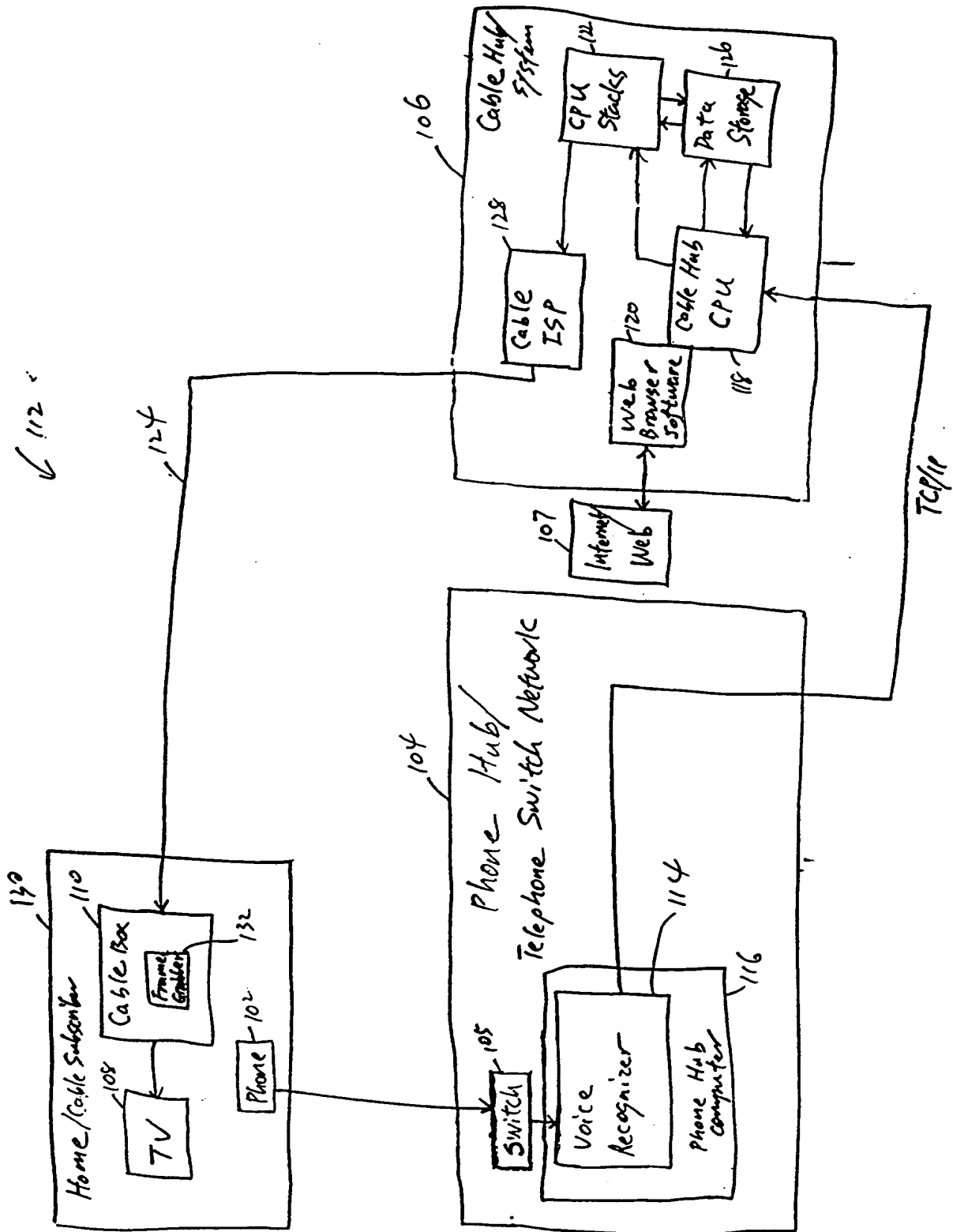
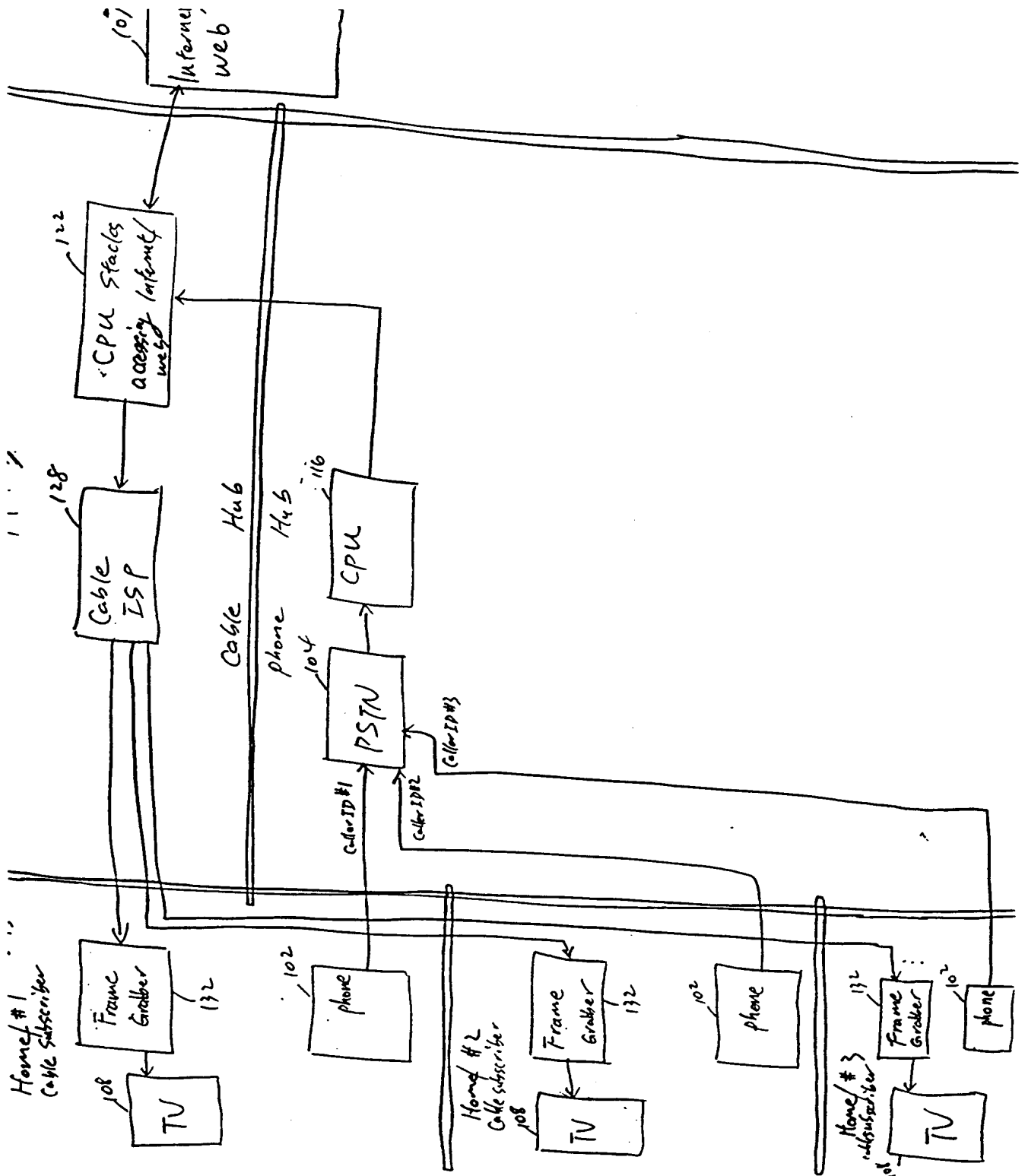


FIG. 2





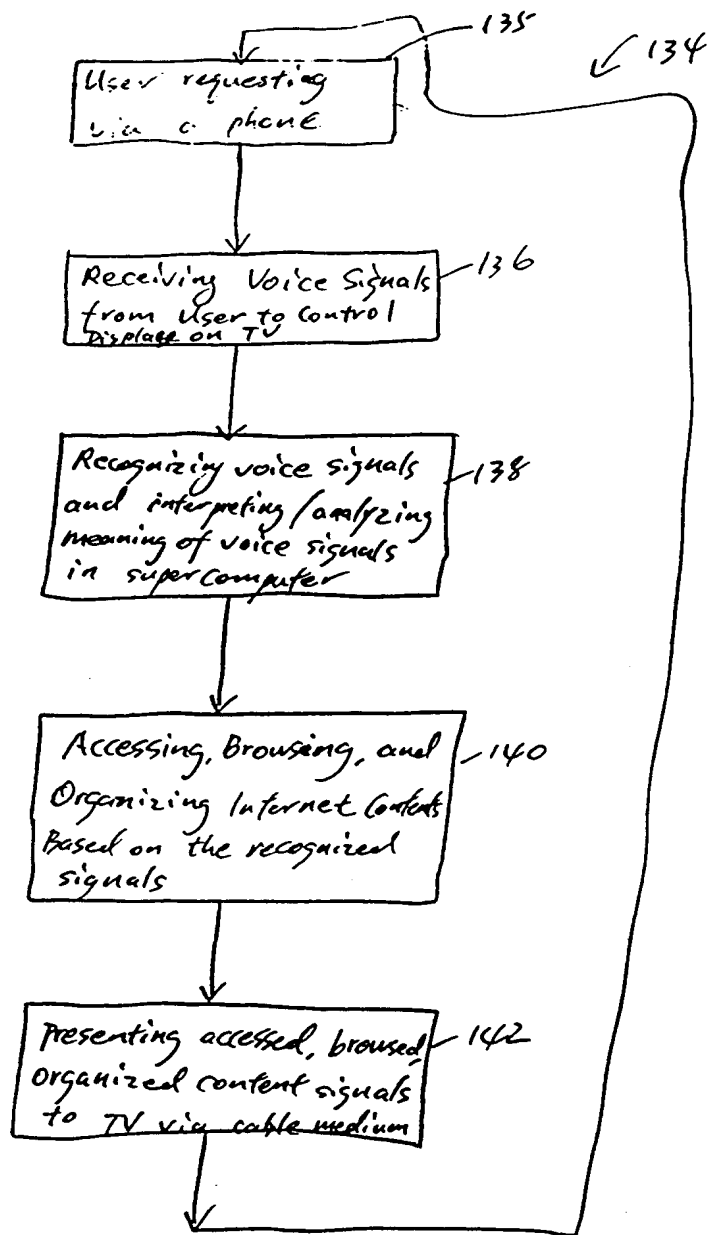
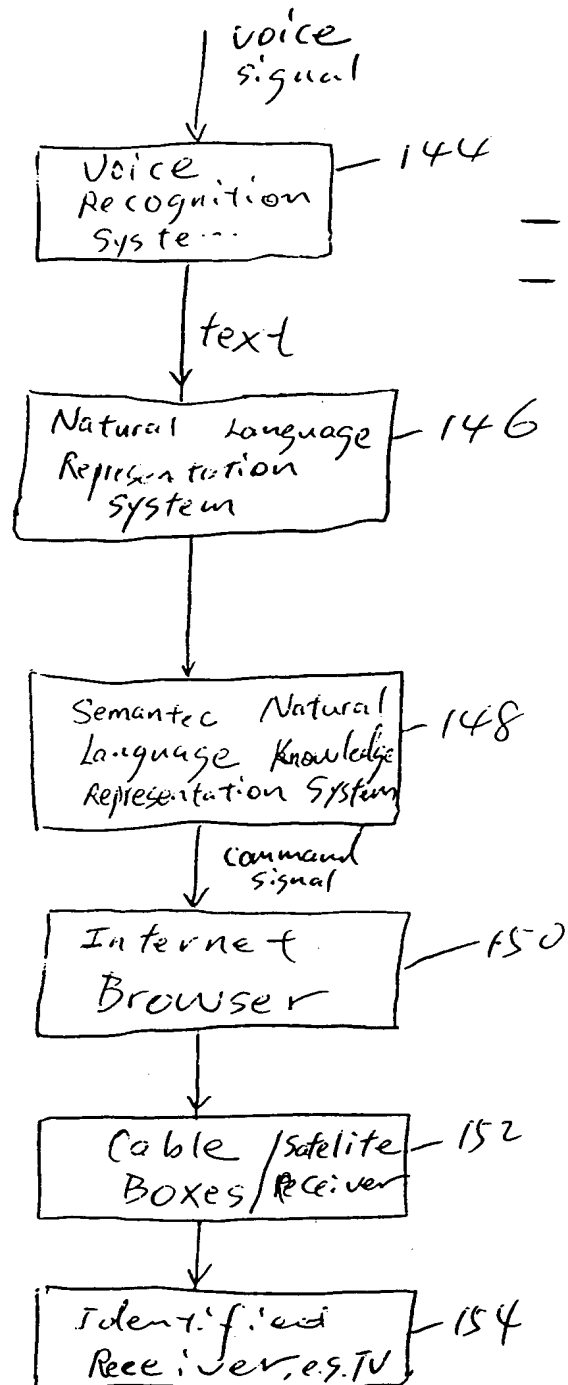


FIG. 4

5 / 5

FIG. 5



INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/31977

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04M3/493

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 97 24826 A (NORTHERN TELECOM LTD ;DOWNING ANTHONY HAROLD (GB); JONES DAVID RIC) 10 July 1997 (1997-07-10) page 5, line 2 - line 35	1-17
X	page 10, line 5 -page 11, line 20; figure 1	18-27
Y	EP 0 840 509 A (IBM) 6 May 1998 (1998-05-06)	1-17
X	the whole document	18-27
X	EP 0 723 369 A (NTEX DATACOMMUNICATIONS BV) 24 July 1996 (1996-07-24)	18-27
A	the whole document	1-17
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
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Date of the actual completion of the international search

27 March 2001

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Megalou, M

INTERNATIONAL SEARCH REPORT

Int ernational Application No
PCT/US 00/31977

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 00 44168 A (CIARDULLO DANIEL ANDREW ;KOPLAR EDWARD J (US); KOPLAR INTERACTIVE) 27 July 2000 (2000-07-27) abstract	18-27
A	<div style="text-align: center;">----</div> ATKINS D L ET AL: "INTEGRATED WEB AND TELEPHONE SERVICE CREATION" BELL LABS TECHNICAL JOURNAL, US, BELL LABORATORIES, vol. 2, no. 1, 21 December 1997 (1997-12-21), pages 19-35, XP000659566 ISSN: 1089-7089 the whole document <div style="text-align: center;">-----</div>	1-27

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int. .ional Application No

PCT/US 00/31977

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